LAPARO-ELYTROTOMY;

A SUBSTITUTE FOR THE CÆSAREAN SECTION.

BY

T. GAILLARD THOMAS, M.D.,

NEW YORK.

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T. GAILLARD THOMAS, M.D.

The operation of laparo-hysterotomy or the Cæsarean section, dating back as it does as an operation performed in the double interest of mother and of child, to the fifteenth century, has now for nearly four hundred years stood at the disposal of the obstetrician who found himself unable to deliver through the natural passages. One writer, Dr. Mansfield, has even striven to prove from the records contained in those most curious Hebrew works, the Nidda and the Talmud, that in this way it was performed by the Israelites of old, but the evidence which he has adduced has not been admitted.

Certain it is that, in the times of the early Greek and Roman civilizations, it was performed upon the dead woman in the interest of the child, but the first authentic case in which it was undertaken upon the living woman, and in her interest as well as in that of her offspring, dates back only to the year 1491.

Its history, since that period, is too well known to require more than a passing mention. In the year 1581 appeared the

[1] Read before the New York Academy of Medicine, March 21st, 1878.

work of Rousset upon the subject, and then followed a period during which it became unreasonably popular, and was resorted to under circumstances which in our time would not be thought sufficient to render it warrantable or legitimate. Of course, the unrestrained performance of such an operation as the Cæsarean section produced many fatal results, not only in the hands of surgeons of ordinary capacity, but necessarily in those even of the most distinguished and deserved reputation. Cazeaux tells us that both Paré and Guillemeau were among the number of those reporting fatal cases. Then was it that Marchant, availing himself of these facts, wrote in denunciation of the too frequent resort to it, and his position being a strong one, he wrote very effectively. A strong party opposed, not to the Cæsarean section, but to the abuse of it, now arose and made its influence felt during the latter part of the sixteenth century. During the whole of the seventeenth and a portion of the eighteenth centuries, professional opinion was greatly divided as to its merits and sphere, and it may be said that even in our day unanimity has not been arrived at.

In general terms, however, it may be stated that, towards the close of the eighteenth century, as the light of science began to dawn upon the art of midwifery, the Cæsarean section gradually assumed its legitimate position as an operation of priceless value in all cases in which delivery by the natural passages proves impossible; but one, the inherent dangers of which are so great that it should be resorted to upon the living woman only when her interests as well as those of the child are to be subserved by it.

To every obstetrician at all worthy of the position which imposes upon him such grave trusts as those of the lying-in-room, the life of the child is a consideration of great moment. That it is second in importance to that of the mother, and that under appropriate circumstances it should be promptly sacrificed to save hers, I feel sure that all here will admit. But clear as the light of day should be the indications, valid beyond all question the conclusion that no safer course is known to science, before one human being should take upon himself the terrible responsibility of destroying the life of another.

It is this consideration which gives to laparo-hysterotomy its chief importance. The alternative operation consists in the

dismemberment of the child, which is either living at the time of the revolting procedure, or which has been allowed to die from delay in interference. Were the life of the mother secured by the sacrifice of her child, the objections to embryotomy would be less great than they are; but this is not the case. The dangers to the mother from this sacrificial procedure are still very great. To prove this, I will not refer to the statistics of general practice, which are rendered worthless by the suppression of numerous fatal cases and the publication of most of the successful ones, but cite only those which were collected in a well-regulated maternity hospital, and of operations performed by a master in the art of obstetrics. Dr. Maunsell[1] says: Dr. Joseph Clark found it necessary, in the Dublin Lying-in Hospital, to use the perforator in 1 in 208 cases. This gave a total of 49 craniotomies. Out of this number 16 women died, or 1 in 3; a dreadful mortality certainly when it is borne in mind that 49 children were sacrificed to effect even this saving of maternal life.

And what of the statistics of laparo-hysterotomy? They are worthless. All successful cases are reported. Hundreds of unsuccessful ones are suppressed. In the majority of cases probably, the child and woman have both been allowed to become utterly exhausted before the operation was decided upon, and then that mortality which has been created by delay and inaction on the part of the surgeon is charged unjustly to the operation. The statistics of the future may be, and as far as relates to hospital practice will be of great value: those of the past are worse than useless, in that they mislead, and becloud the truth.

In Great Britain, an honest prejudice has always existed against this operation. On the Continent of Europe, far better results have been obtained, but even there the statistics are by no means satisfactory. Writing in the present decade, Barnes, a good representative of modern midwifery, declares that, "the Cæsarean section occupies a doubtful place between conservative and sacrificial midwifery. It is conservative in its design, in its ambition; it is too often sacrificial in fact.

The position may be safely assumed that, although the exact risk to life attending the Cæsarean section cannot be settled, it

[1] Dublin Practice of Midwifery, p. 138.

must be regarded as an operation of the greatest gravity. And however much we may improve in abdominal surgery and in our ability to avoid its greatest dangers—hemorrhage, shock, peritonitis, and septicæmia—this operation will still, from its very nature, retain its place as one of the most dangerous procedures known to surgery.

A recognition of these facts has rendered obstetric surgeons anxious so to modify the procedure as to divest it of some, at least, of its dangers. Thus we learn that a variety of abdominal incisions have been at various times resorted to, and two substitutes, which I am about to mention, have been suggested.

In 1768, Sigault formally proposed the operation of section of the pubic symphysis, for the purpose of giving increased space to the cavity of the true pelvis. At the time when this procedure was proposed, Sigault was merely a student of medicine, and the Academy of Surgery to which his memoir was presented almost refused to entertain it. Some of the most eminent members of that body expressed the view that it was the undigested idea of a young and inexperienced mind. But Sigault, nothing daunted, sustained his proposition in an inaugural thesis presented at Angers in 1773, and in 1777, nine years after its first proposal, absolutely resorted to the operation upon a living woman. His patient recovered after having been delivered of a living child.

And then the tide of opinion turned strongly in favor of the persevering innovator. His name was lauded as that of one who had accomplished a great result for humanity, and the faculty of medicine of Paris had a medal struck off in his honor. In a short time, however, a strong opposition sprang up against the procedure, and at our day, although a short historical sketch of symphyseotomy is usually given in works on midwifery, no one ever resorts to it, or even alludes to it, except as an example of how wise men in medicine may be deluded by an unproved theory, and be misled into the endorsement of an untested experiment.

Thirty-eight years after this, that is in 1806, another idea was conceived in the same direction, and this time by a German. Kilian[1] tells us that at that time Jörg suggested cutting through the abdominal walls by an incision extending from

[1] Op. Geburtshülfe, Vol. II., p. 715.

the spine of the pubis to the anterior spinous process of the ilium; then cutting through the vagina, and delivering through the os uteri. He appears never to have performed the operation. In 1820, Ritgen proposed the same operation, and styled it gastro-elytrotomy, adding to Jörg's procedure the important amendment of lifting instead of cutting through the peritoneum.

In 1822, Physick[1] of Philadelphia proposed the same procedure to his friend Dr. Horner, and in 1823, A. Baudelocque, Jr., of France, published a thesis upon and once essayed the operation, but abandoned it, and resorted to the Cæsarean section.

In 1844, L. A. Baudelocque published a pamphlet of twenty-six pages upon it, entitled "Opération Césarienne, Elytrotomie ou section du vagin, précédé, ou non, de la ligature, ou de la compression de l'artère iliaque interne."

Kilian,[2] in speaking of Jörg's conception of the operation, says that he merely suggested it, and he alludes to one operation by Ritgen which ended fatally. Velpeau,[3] in 1835, alluding to Ritgen's procedure, says, "However, it exists only in theory, and no one has thus far practised it on the living woman." In speaking of Baudelocque's method, Velpeau says, after alluding to the case in which Baudelocque attempted elytrotomy and abandoned it for the Cæsarean section, "A single case, I admit, does not authorize us to draw positive conclusions, but this, the only one demonstrated upon the living woman, gives great force to the theoretical objections already mentioned against the idea of the author." Dr. Horner, who reports Physick's proposal to Dewees, says, in concluding his letter, "I have thought that even a proposition not yet confirmed by actual experience of its success, would not be an unacceptable addition," etc.

So far as I have been able to learn, then, this operation had been performed but once before 1870, when I repeated it. Ritgen was the operator; Baudelocque, according to Velpeau, merely essayed it, and probably losing confidence in an untried procedure—for I cannot, with my experience, see how failure in the removal of the child was possible—he at once resorted to the better known and more legitimate operation of the Cæsarean section.

[1] Dewees' Midwifery, p. 507. [2] Loc. cit.
[3] Traité de l'art des accouchements, Vol. II.

It is quite possible that I may be mistaken in the belief that but one attempt had been made before mine, for I have been foiled in my efforts to obtain L. A. Baudelocque's pamphlet, written in 1844, and a busy life has prevented my giving as much time as I could wish to a search into the literature of the subject.

In spite of all the suggestions and feeble attempts at putting in practice this operative procedure as a substitute for the Cæsarean section, it appears to have attracted little attention and to have passed out of notice with but little consideration. The complete oblivion into which it fell will be appreciated when I assert that, until some time after I had essayed it on the cadaver, I was fully under the impression that the idea had originated with myself, and although I spoke of it freely with my professional friends in New York, none of them were able to correct my error until I mentioned it to Dr. Emil Noeggerath, who remembered having somewhere read of Ritgen's operation. This hint led to the search into the literature of the subject, and resulted in the discovery of what I have just stated as to previous trials of the plan.

In most modern obstetrical works it has become a fashion to give a short sketch of Sigault's utterly worthless operation of severance of the pubic junction. In almost none is this procedure alluded to at all. Velpeau, Dewees, Cazeaux, and Bedford express opinions casting doubt upon the possibility of the successful performance of the operation.

Thus stood matters with regard to the subject when I began to investigate it. I had, in company with my friend, Dr. Henry F. Walker, on several occasions experimented upon the non-pregnant cadaver, when in February, 1870, an opportunity was presented me, through the kindness of Dr. Cushman, of New York, of testing the plan upon the body of a woman who had died of puerperal convulsions near the end of the ninth month of pregnancy. This experimental operation resulted as follows:

CASE I.—*Laparo-elytrotomy performed on the cadaver.*

A young Irishwoman, a multipara, aged about 30 years, had, in the latter part of the ninth month of pregnancy, as nearly as could be ascertained, died of uremic convulsions. Dr. Cushman at once notified me, and about eight hours after death I proceeded to remove the child by laparo-elytrotomy, in presence of Drs. H. B. Sands, J. L. Brown, J. B. Reynolds, Cushman, and Morton.

The body being laid upon a table, I passed my hand up the

vagina, and in about fifteen minutes dilated the cervix uteri so that my hand could pass in. The membranes were unbroken. Withdrawing the hand from the vagina, I then made an incision with a bistoury through the abdominal walls on the right side, extending from the spine of the pubis to the anterior superior spinous process of the ilium, and sweeping upwards directly above the ligament of Poupart. Having cut through the muscles, I rapidly and easily lifted up the peritoneum with my fingers, and soon came in contact with the vagina at its junction with the cervix. Dr. Brown then passed a large steel sound into the vagina, so as to make it rest against the cervix, and by this lifted the vagina into the opening in the abdominal walls. I then cut down upon the sound, enlarged the opening made with my fingers, and the sound was withdrawn. Fixing an obstetric blunt hook in the cervix, it was seized by an assistant, who lifted that part into the iliac fossa, while another depressed the fundus uteri in an opposite direction. Then passing my right hand into the open cervix, I easily caught a foot, turned the child and delivered.

The operation was performed rapidly and without difficulty or detention. It was the remark of all present that, had the child been alive at the commencement of the operation, no influence was developed during its performance which could have injured it.

Case II.—*Laparo-elytrotomy performed on a living woman.—A living child delivered.*

Within a month from the time of the experimental operation just recorded, I was called in great haste by Dr. T. C. Finnell to a case which he was attending with Dr. Richardson, under the following circumstances. The patient, a multipara, aged about 40 years, and at the end of the 7th month of utero-gestation, had been suffering from pneumonia for a week or ten days, and was now *in articulo mortis*. Dr. Finnell intimated that he could wait only a short time for me, for, as the woman was fast becoming comatose, he should deem it his duty to perform the Cæsarean section in the interest of the child, which might prove viable. I hastened to the patient's house, and found everything in accordance with what has been stated; the patient, almost entirely pulseless, was cyanosed, breathing with a loud laryngeal rattle, and almost entirely unconscious. A rapid consultation was held between Drs. Finnell, Richardson, Jas. L. Brown, Walker, Lynch, and myself, and it was decided that the child should be removed at once by abdominal section.

The patient being placed upon a table, anæsthesia was produced, to the point of quieting her restlessness and jactitation, with a few inhalations of ether. I then passed my hand up the vagina and dilated the cervix slowly and cautiously, so that at a three-quarter distention no injury was done to its tissue. With a bistoury I then cut through the abdominal muscles, the incision being carried from the spine of the pubis to the anterior superior spinous process of the ilium. The lips of the wound were then separated, and by two fingers the peritoneum was lifted with great readiness, so that the

vagino-uterine junction was reached. The vagina was then lifted by a steel sound passed within it, and cut, and the opening thus made was enlarged by the fingers. The cervix was then lifted into the right iliac fossa by the blunt hook, while the fundus was depressed in an opposite direction. I then passed my right hand into the iliac fossa and introduced two fingers into the uterus, while the left hand, placed on the outer surface of the uterus, depressed the pelvic extremity of the fœtal ovoid. The knee was readily seized, and delivery easily and rapidly accomplished. The child was born alive, but was a badly developed, harelipped, and, as I before stated, premature infant. It lived for an hour or two, during which time the rite of baptism was administered to it. The mother, the wound in whose abdomen was closed by interrupted suture, died about the same time as the child.

In completing the recital of this case, I need hardly point out the fact that the fatal issue for mother and child which occurred should not in the slightest degree be imputed to any inherent imperfection in the operation itself. It was unquestionably due to these two circumstances which characterized this individual case: first, that the woman was moribund when the operation was undertaken; and second, that the child was premature, undeveloped, and probably depreciated in strength by the toxæmia which had for days affected the mother in consequence of pneumonia. I think that I am correct in saying that all the gentlemen present agreed in the belief that nothing connected with its delivery could in any way have injured the child's prospects for life. The liquor amnii was unevacuated up to the moment when version was practised, and not an instant's delay, or the expenditure of any, even the slightest, force was developed as a possible cause of death. The child died, as we often see premature children die, from want of cerebro-spinal and ganglionic nerve-power to maintain the functions of life in its new relations, and to all intents, in so far as the utility of the procedure for the saving of fœtal life is concerned, it proves the affirmative as thoroughly as if it had lived for years.

This case was published, and I waited in the hope that another of more suitable character for testing the full resources of the operation might occur. Although a number of my professional friends were on the outlook for such a one, it did not appear until after three were met with by my friend Dr. A. J. C. Skene of Brooklyn. These, with Dr. Skene's permission, I introduce here, numbering them in regular sequence with my own.

CASE III.—*Laparo-elytrotomy performed in the interest of the mother after perforation of child's head.*

The history of this case I condense from Dr. Skene's report.

The patient was a primipara at full time. Labor commenced on Friday, March 20th, 1874, and Dr. Charles Corey was called in on Saturday morning. The os uteri was dilated, but the head, the presenting part, was wholly above the superior strait. When the os became fully dilated, Dr. C. ruptured the membranes, but the head did not engage at all in the pelvic cavity. At 3 A.M. on Sunday, Drs. Andrews and Fürgang having previously been called in consultation, version was attempted, but found impossible, owing to the shortness of the antero-posterior diameter of the pelvis, which was not more than 2½ inches in diameter. At 8 A.M. of the same day, delivery by craniotomy was undertaken, but, after perforating the head, that also was abandoned, because of the œdema of the parts and the narrowness of the pelvis. Dr. Skene saw the patient at 2 P.M. on Sunday, about forty-eight hours after the commencement of labor. At this time, she was suffering from exhaustion. Her pulse was feeble, and over 130. Laparo-elytrotomy was proposed and agreed to by all present, as the only means of giving the patient a chance for her life. It was also felt that, if she died—which, in all probability she would do—she would be relieved, during her last hours, from the severe labor pains. She was anæsthetized, the abdomen and vagina opened, and Dr. Skene, seizing the occipital bone with the craniotomy forceps, delivered the child and placenta with ease, in ten minutes. The patient came out from the anæsthetic well, and remained free from pain. The exhaustion was but slightly increased by the operation, but it gradually became more marked, and she died seven hours after the operation.

The next two cases I give in Dr. Skene's own words.

CASE IV.—*Laparo-elytrotomy successfully performed for mother and child.*

"Mrs. F., aged 31 years, born in England. She is rachitic, and, in giving her history, stated that she was unable to walk without support until eleven years of age. At twenty-five years of age her physician delivered her by performing craniotomy, after which she made a slow recovery, and was confined to her bed for six weeks. Some time after that she was delivered at the seventh month. The child lived only a few minutes. When she came to this country, her physician gave her a letter stating the nature of her former confinements, and also that she had a deformed pelvis. This letter she brought to me in 1872, when I found that she was again pregnant. She expressed a strong desire to have a living child, and, upon examining the pelvis, I resolved to let her go until the beginning of the ninth month, when I proposed to induce labor, in the hope of obtaining a living child. Accordingly I brought on labor in the first week of the ninth month, and found an arm presentation. Version was performed with great difficulty, owing to the fact that the antero-posterior diameter of the superior strait was not more than two and three-quarters (2¾) inches.

By using strong traction, and extreme pressure over the uterus, depression of one of the parietal bones was produced, and thereby a small child was delivered, which lived for several months. Metritis followed, and she suffered great pain in her back and limbs. There was also partial paralysis of the limbs, which slowly disappeared. Altogether it was five weeks before she recovered. At that time she was strongly advised to give up child-bearing. Some time ago she called upon me and stated that she was pregnant, and urged me to save her child if possible. I told her if she would take the risk, I would give her what I believed to be the only certain chance of having a child, and also the possibility of saving her own life. She cheerfully accepted the proposition, and expressed her determination to go to full time.

I gave the history of her case to Prof. T. G. Thomas and asked his advice and assistance. His kind reply was that he would be at my service at any time. Late in the afternoon of Oct. 28th, 1875, she called at my office, and, on examination, I found her at full time, the os uteri dilatable, and that she had slight uterine contractions.

She was ordered to go home and to let me hear from her late in the evening. At ten o'clock her husband reported that she had slight pains, but was about the house and felt comfortable. I gave directions to call me during the night if her pains increased, and not to wait longer than four o'clock in the morning. Labor progressed, but, being unwilling to disturb me, they did not call me until six A.M. on the 29th. I then found that she had good labor pains, and that the os uteri was almost fully dilated; the membranes were unruptured, and an arm and the cord were presenting. I could feel the cord pulsating through the membranes, and the fœtal heart was heard distinctly. I sent in all haste for Prof. Thomas, but most unfortunately he was engaged and could not come. I also sent for Drs. Corey, Cushing, Stuart, and Bunker. While waiting for my medical friends, I was in constant dread that the membranes would rupture and the cord become compressed so as to destroy the child.

I felt sure that I could not restore the cord and keep it in place when there was an arm presentation, and I dreaded the death of the child, which would have decided in favor of delivery by embryotomy, an operation which, under the circumstances, would have been difficult and very dangerous to the mother. Fortunately the membranes remained intact until my friends came. At nine o'clock I performed laparo-elytrotomy, according to the method of Prof. Thomas, the best, indeed the only authority on this operation. I opened the abdominal wall and also the vagina, before I ruptured the membranes. I then delivered by performing version.

Having reason to believe, from the character of the fœtal heart action, that the circulation of the child was slowly becoming interrupted, I made great haste to deliver as soon as I ruptured the membranes.

The child, which weighed ten pounds, was slightly asphyxiated, but was easily restored.

The time occupied from the beginning of the operation until the child and placenta were delivered, was fifteen minutes, five minutes

longer than my former operation. The extra time required was owing to slight hemorrhage, caused by making the incision in the abdominal wall lower down than was necessary, and also by having to restore the prolapsed arm, and deliver by version.

There was no shock or vomiting after the operation, and no hemorrhage, primary or secondary, worthy of notice.

Several hours after the operation, Dr. Stuart, in passing the catheter, discovered that the bladder had been opened. The opening in the vagina had been extended so as to enter the junction of the urethra and bladder on the right side.

I am satisfied that the bladder was not wounded at the time when I opened the vagina, but that it occurred during delivery.

If I had had more time, and could have permitted the parts to distend gradually, the wound in the bladder would not have been made. It was unfortunate, if not bad management on my part, that I did not detect the wound in the bladder at the time of the operation, for then a few stitches could have been easily introduced and the catheter worn until the opening closed.

When I became aware of the accident, I was unwilling to anæsthetize my patient again and submit her to the operation of closing the wound, because I feared that I might cause hemorrhage.

The second day the temperature went up, and she became quite tympanitic, but there was no tenderness to indicate peritonitis.

The symptoms were due mostly, I believe, to a slight metritis, such as she had after other confinements. These conditions continued for about four days, but the temperature did not at any time exceed 102°, and the pulse did not go beyond 120. On the sixth day, the tympanitis was relieved by an injection containing mint-water.

Morphine was given at night to secure sleep, and quinine was used in the day in the hope of preventing malarial fever, which had troubled her, off and on, for years. From the sixth to the tenth day her condition was remarkably good. Her pulse and temperature were normal; her appetite good, and she had a scanty secretion of milk.

On the tenth day she sat up in bed, contrary to our expressed wishes, but was apparently no worse for it.

In the afternoon of the eleventh day she had a chill, followed by fever and free perspiration. She was quite well on the morning of the twelfth day, but the chill and fever were repeated in the afternoon.

Quinine was freely given on the following day, and there has been no return of chills or fever. She believes that this part of her trouble was a return of her familiar ague, and I believe that her diagnosis was correct.

The external wound healed by first intention, except at the two central stitches, where there was suppuration. Both the abdominal and vaginal wounds were completely healed on the fourteenth day. On the fifteenth day she sat up in a chair while her bed was being made, and, with the exception of the opening in the bladder, she was as well as one of her constitution could be at that date after confinement. At the end of three weeks she went out riding, and continued in good health from that time. On November 28th, I

closed the small vesico-vaginal fistula, and two weeks afterward dismissed her well and sound. January 15th, 1876, she is well, and nurses her strong, healthy baby.

Finally, I wish to state positively that I believe the injury done to the bladder was the fault of the *operator*, not of the *operation*, and that I could avoid that accident in future. I am also satisfied that I could not have under the circumstances delivered that patient in any other way, with more *safety* to *herself*. I trust that the history of this case will aid in placing the operation among the chief triumphs of obstetrical surgery, to the honor of Professor Thomas, whom I believe to be its author."

CASE V. -- *Laparo-elytrotomy; operation four days after beginning of labor; recovery of mother and child.*

"The subject of this history is an unmarried Bohemian girl, 37 years of age. She became pregnant, but concealed her condition from her relatives, with whom she lived, up to the full period of gestation. This she was enabled to do by being herself very much deformed in body.

She was taken in labor on Tuesday, the 19th of June, 1877, and soon after the membranes ruptured; at least, this much was learned from subsequent inquiry. Her labor pains continued, but she did not disclose her true condition, nor did her friends suspect what was her trouble; but becoming alarmed at her continued suffering, they sent for Dr. S. Schmitzer on the morning of Friday, the 22d. The doctor found that she was pregnant at full term. The membranes were ruptured, the liquor amnii completely drained off, and the uterus contracted firmly round the child. The dilatation of the os uteri was only sufficient to admit the point of the finger.

The patient was much below the average size, emaciated, her complexion sallow, and her skin dry, and ill-conditioned in appearance. There was a well-marked forward curvature of the spine in the lumbar region; the sacrum was nearly straight, and formed a right angle with the axis of the spinal column; the symphysis pubis was deeper than normal, being about two inches. The antero-posterior diameter of the superior strait was said by Dr. Schmitzer to be one and one-fourth inches, and I am confident that it did not exceed one and one-half inches. The thighs were flexed to nearly a right angle to the body, and held there by anchyloses of the hip-joints. The knees could not be separated more than an inch and a half. The left lower extremity was four and three-fourths inches shorter than the right. A number of deep scars about the hips indicated the previous existence of large abscesses. These, existing in connection with the anchylosis, led to the conclusion that she formerly had had hip-joint disease of both sides.

Dr. S., finding the conditions described, satisfied himself that normal delivery was impossible. He then called Drs. Frickenstein and Weber to see her in consultation. These gentlemen agreed with the doctor regarding the deformity and the difficulties in the way of delivery.

I saw the patient with Drs. Schmitzer and Alexander Hutchins at six P.M., on Friday, the 22d. She was then partially relieved from pain by a dose of morphine, which was given to her in the afternoon. The os uteri was still undilated beyond about half an inch. From the character of the presenting portion, as observed through the walls of the uterus, it was presumed to be the vertex.

In consultation we agreed to first dilate the cervix, and then deliver by laparo-elytrotomy; but as the patient was not having severe pains, and we were not then prepared to operate, we concluded to wait until morning, when we would have daylight. In the mean time dilatation of the os could be attended to. Early on the following morning, Saturday, Drs. S. and H. began an artificial dilatation of the os, which was found to be a most difficult task. Owing to the deformity of the patient, the cervix was flexed backward so as to bring its axis to a sharp angle with the axis of the uterus, and there was not room enough in the pelvic cavity to permit bringing the cervix forward on a line with the body of the uterus. It was therefore almost impossible to pass the dilator through the internal os. After prolonged manipulation, dilatation to the extent of two and one-half inches was effected.

At ten A.M., on Saturday, the 23d, four days from the time labor began, we were prepared to operate. In selecting this method of operating, we were guided by the fact that craniotomy was impossible under the circumstances, not alone because of the narrow superior strait, but also from the fact that the axes of the uterus and vagina were at right angles, which made it impossible to use the necessary instruments for delivery in that way. This statement will be indorsed by Drs. Schmitzer and Hutchins, who tried to dilate the cervix. Cæsarian section was suggested by the difficulties in the way of laparo-elytrotomy; but we preferred to encounter the obstacles rather than open into the peritoneal cavity and uterus of the patient. The condition of the patient just before the operation was not encouraging. Her skin was dry and hot, tongue coated, temperature 102½°, pulse 98. Indeed, the operation was beset with difficulties from beginning to end, and on that account I will give the several steps in brief detail.

To reach the point for incision parallel to and a little above Poupart's ligament, it was necessary to raise up the abdomen and retract the soft parts of the thigh as much as possible. The parts being thus brought into view, the abdominal walls were divided through the tegumentary and muscular layers. This was accomplished without much trouble; but on reaching the region of the peritoneum, I encountered the products of a previous inflammation, which obscured all the normal anatomy. I have always believed that a previous pelvic peritonitis would greatly complicate this operation, and have dreaded that such a case might fall to my lot, and in this case I fully realized my expectations. The peritoneum, iliac fascia, bladder, and vagina were all glued together by plastic material, which rendered the normal tissues unrecognizable. This, and the space between the flexed thigh and the large abdomen

being very narrow, made the difficulty of manipulating very great. The vagina also was narrow and unyielding, so that it could not be forced upward to guide us in the right direction. In this part of the operation there were three points of danger to be guarded against:

First.—Wounding the peritoneum. There is no danger of doing this when the parts are normal, for then the peritoneum can be easily recognized and lifted up from the other tissues with perfect facility; but in this case everything was changed in appearance and character, and in place of easy-sliding tissues we had lymph and adhesions, both difficult to manage.

Second.—I had learned, by former experience, that to open the vagina too near the symphysis pubis gives rise to the danger of the incision extending into the bladder during delivery.

And *Third*, if the incision is made too near to the walls of the abdomen, there is danger of wounding the circumflexa ilii artery.

We succeeded in avoiding the peritoneum and important vessels, but unfortunately the bladder, which was drawn upward and to the right by old adhesions, was wounded. That is not very surprising when it is remembered that in making this portion of the dissection I was guided mostly by the sense of touch, and the parts were so crowded together and changed in appearance as to be almost unmanageable. The point at which the bladder was wounded was just opposite the anterior superior spinous process of the ilium, a place where one would not expect to find it.

When the cervix uteri was reached through the opening in the abdominal wall and vagina, we found dilatation sufficient to admit the points of the four fingers. Manual dilatation was then made and soon completed. The only difficulty experienced was in getting the fingers between the child's head and the uterus, so firmly was the latter contracted. The head presented transversely, with the occiput to the left side. Delivery by version has been advised in this operation, and was thought of in this case, but was ruled out as being impossible, owing to the firm contraction of the uterus. Deciding to deliver with the forceps, we proceeded to use them. Here we encountered another perplexing difficulty. The thigh stood up in front of the opening in the abdominal wall and the os uteri, and prevented the introduction of the instruments. After some awkward manipulating, we succeeded in grasping the head, and then delivery was easy and speedy. The placenta came away without trouble. There was very little hemorrhage; the wound was closed with silver sutures and dressed with cotton wadding, secured by adhesive straps.

The child was markedly asphyxiated, due, no doubt, to the continued contraction of the uterus so long after the escape of the liquor amnii. It was restored after the vigorous employment of artificial respiration. It was well developed, healthy in appearance, and weighed 7½ pounds. Drs. S. Schmitzer, Hutchins, Corey, Cushing, and Hunt were present and gave their counsel and assistance in the operation.

She recovered from the anæsthetic promptly, and showed no symptoms of shock, nor did she complain of pain or discomfort.

On the day following the operation her pulse was 94, and her temperature had fallen from 102½ (which it was at the time she was delivered) to 100°. The catheter was used frequently in order to keep the bladder from being fully distended.

Dr. S. and H. observed that, after a few days, the quantity of urine retained in the bladder became less and less, and at the same time the urine was seen to escape from the vagina.

The introitus vaginæ was small and firmly contracted, which prevented free drainage, causing the urine to accumulate in the vagina and well up through the abdominal wound.

A rubber tube, perforated with small holes for about two inches at one end, was introduced into the vagina for the purpose of draining off the urine. It answered well, and for twenty-four hours the urine flowed continuously and freely into a urinal, and all appeared to progress well for a time. The patient unfortunately was ignorant, obstinate, and unmanageable. Her mental obliquities and angularities were, like those of her body, well marked. After a day or two she became dissatisfied with the drainage tube and would not let it remain any longer in the vagina. Every time that the doctor placed it there she would withdraw it and throw it away, and no argument could persuade her to do otherwise. The urine, from this time, flowed freely from the abdominal wound, and occasionally from the vagina. Owing to the disagreeable disposition of the patient, it was impossible to keep her clean or comfortable. Her appetite was good, her bowels moved regularly, she slept well on small doses of morphine at bed-time, and her pulse and temperature were normal, but it was difficult to keep her wounds in good condition. She was cared for by her sister, who, although willing, was not skilled as a nurse, and, besides, she had her household duties to perform.

Such being her surroundings, we concluded to send her to the hospital, and on the fifth of July, two weeks after delivery, she was taken there. She made the journey to the hospital, about three miles, very comfortably. When admitted, her condition gave evidence of want of proper nursing. The wound was healed except at the outer portion near the anterior superior spinous process of the ilium where the fistulous opening was. Around the opening the parts were foul and covered with a superficial slough. Most of the urine escaped from this opening. There was also a free purulent discharge.

She was placed upon tonic doses of quinine, and a little morphine at bedtime to relieve an uneasy restlessness. The wound, vagina, and bladder were kept thoroughly clean by the frequent use of carbolic acid and water. A stream was passed from the wound in the side through the vagina and then reversed. The bladder was also injected; the stream being carried in through the urethra and made to escape through the vagina and abdominal opening.

To keep the wound in the best condition for healing, a rubber tube was introduced into the fistulous opening in the side, and it made good drainage when the patient could be persuaded to keep it in place, but she often pulled it out. After a few days the house physician succeeded in passing a perforated rubber tube from the

abdominal opening out through the vagina and left it there. This made perfect drainage. Sometimes the urine would flow from one end of the tube, and sometimes from the other, according to the position taken by the patient, and she was unable to remove this tube, which was a great advantage.

From this time the abdominal wound healed rapidly, and the drainage tube was finally removed about the third of August. The urine flowed then from the vagina only. To drain the vagina, a hard rubber bulb with a stem was used, which answered very well to carry off the water. The bulb was olive-shaped, and perforated closely with small holes. To the stem of the bulb a small flexible tube was attached which conveyed the urine to a vessel. A rubber urinal was obtained for her which she could wear while walking around, but for some reason, which no one could understand, she would not use it.

Most of the time since the operation the bladder has retained more or less urine, and at this stage of her progress the house physician noticed that it began to retain more and more, showing that the fistulous opening was closing. Improvement in this direction continued until the 12th of August, when the bladder had fully regained its power of retention, indicating that the fistula had closed.

At this date (August 12th) her health is as good as it ever was. In short, the recovery of the mother is complete, and the baby, which was left at home, prospered for a time, but died when eighteen days old, from bad feeding and care.

The notes here given of the case while in the hospital are brief extracts taken from the clinical records kept by the resident physician, Dr. McPharlin, to whose skill and constant care her complete recovery is largely due.

In reviewing this case of laparo-elytrotomy, I may say that a more unfavorable case for operating could not well be imagined.

The conditions of the patient in every particular relating to the operation, and the want of facilities for after-treatment, were such as to thoroughly test the merits of this method of delivery. Certainly, greater difficulties than were here encountered are not likely to occur in the future history of this operation."

The next case occurred to myself nearly eight years after my first, and is here given. As there is a great deal connected with the history of the ten days subsequent to the operation which is very interesting, I quote rather fully from the notes of Dr. Beckwith, the resident physician of the Nursery and Child's Hospital, to whose intelligence, assiduity, and devotion I feel that I am greatly indebted for the successful issue which occurred.

CASE VI.—*Laparo-elytrotomy successfully performed for both mother and child.*

On the 3d of December, 1877, I was requested by Prof. James W. McLane to see with him, at the Nursery and Child's Hospital, a

woman who had been taken in labor some sixteen hours before. She resided in Harlem, about four miles distant, and had been attended there by Drs. Farrington, Dwyer, and Shrady, who, finding the pelvis so much contracted as to require an operation, had sent for Dr. McLane, and at his suggestion she was brought to New York. The labor at this time was far advanced, but her surroundings at home were so unfavorable that this was deemed the wiser course.

The woman was Irish, 20 years old, married, and a primipara. She was very small and undeveloped; one leg was contracted and bent, and the thigh firmly flexed on the abdomen. The pelvis at the superior strait had been estimated by Dr. McLane, Dr. G. A. Sabine, and the other gentlemen above mentioned, at $2\frac{3}{4}$ inches in the conjugate diameter, though I question whether it measured more than $2\frac{1}{2}$. At the outlet, the conjugate diameter was long, while the transverse was estimated at $2\frac{1}{4}$ inches.

The question as to operative procedure up to the time of my arrival had been between evisceration, the child presenting by the breech, and Cæsarean section, the preponderance of opinion being decidedly in favor of the former. I proposed, as a compromise, laparo-elytrotomy, and this being decided upon, Dr. McLane very kindly requested me to perform the operation.

The patient being anæsthetized and laid upon a table, I cut through skin and adipose tissue from the superior spinous process of the ilium, along the upper edge of Poupart's ligament to the spine of the pubis on the right side of the body. Then I cut through the muscles, and coming down to the peritoneum, lifted this, and touched the vagina. Dr. McLane now passing his finger through this canal and pushing it upwards, I cut down upon it near the uterine junction. Then inserting my two index fingers, I tore the vaginal wall downwards. Immediately the uterus, contracting strongly, forced the breech of the child into the iliac fossa, and hooking the index fingers into the groins, I rapidly delivered. The child was asphyxiated, but by sharp slapping it soon recovered and cried lustily. From this time onward it did perfectly well.

The wound having been thoroughly cleansed of blood-clots by forcing carbolized water through it by means of a Davidson's syringe, was closed by silver sutures throughout. No vessels were tied, and thus no foreign substance was left within it.

The duration of the operation, from the time of the first incision to its completion, was thirty-five minutes. After its completion, the patient was put to bed, given an opiate, confined to fluid diet, and kept perfectly quiet upon the back.

From this time the history is compiled from Dr. Beckwith's notes.

Dec. 4th, patient slept well last night, quieted by morphia administered hypodermically. At 8 A.M. temperature 99°, pulse, 132. Milk given every 2 hours. 7 P.M.—T. 102°. P. 140.

Dec. 5th.—8 A.M.—T. $99\frac{2}{5}$°. P. 124.

7 P.M.—T. 100°. P. 128.

Urine does not pass through catheter kept in bladder, but escapes per vaginam. A fistula evidently exists.

Dec. 6th, 9 A.M. T. 101°. P. 136. Wound washed out by vaginal injection of carbolized water every 8 hours; water forced out through abdominal wall freely. 10 P.M.—T. 101⅖°. P. 128.

Dec. 7th.—8 A.M.—T. 102⅘°. P. 128.
7 P.M.—T. 98⅗°. P. 116.

Dec. 8th (sixth day since operation), 8 A.M. T. 98⅘°. P. 108. Urine flowing now freely through catheter. When vagina is injected, very little water flows through wound. 11 P.M.—T. 100⅘°. P. 116.

Dec. 9th.—8 A.M.—T. 98⅘°. P. 124.
8.30 P.M.—T. 101°. P. 124.

Dec. 10th.—8 A.M.—T. 99⅗°. P. not recorded.
9 P.M.—T. 98⅘°. P. " "

Dec. 11th.—9 A.M.—T. 103°, and at 10 A.M., 104⅖°. As patient had lived in a very malarious district, rise of temperature was regarded as due to miasmatic poisoning. Quinine was given in scruple dose, and at 7 P.M. T. was 100°.

Dec. 12th.—9 A.M.—T. 101⅕°. P. 124.
8 P.M.—T. 103⅘°. P. 128.

Dec. 13th.—8 A.M.—T. 101⅗°. P. 112.
8 P.M.—T. 98⅘°.

Dec. 14th.—8.30 A.M.—T. 98⅘°. P. 92.
7.30 P.M.—T. 98⅘°. P. 88.

Patient very steadily and certainly improving. Dec. 15th, T. taken every 2 hours, 98⅘°, P. from 92 to 104.

From this time the patient went on steadily to complete recovery, the wound healing by second intention, the solution of continuity being filled up by granulations.

It is in my mind a question whether the rise of temperature was due to miasmatic poisoning, or to septicæmia. My impression is that the former condition produced it, as it was markedly controlled by quinine, freely administered.

On the 20th day after the operation, the bladder, which was undoubtedly injured by the operation, recovered its retentive power, the catheter was removed, and patient thenceforth passed her urine voluntarily.

On the 25th day after the operation, one end of the round ligament protruded from the wound, which had now nearly healed throughout its length. This was ligated and cut off.

On Jan. 3d, 32 days after operation, the wound which was originally 5 inches long, measured in length 2½ inches, and in depth ½ an inch. Vaginal examination showed on right side an opening with sharp, falciform border extending into iliac fossa, one inch in extent.

On this date the patient was discharged cured. She and her child have since done perfectly well.

In three of these cases, two of Dr. Skene's and one of mine, that just recorded, the bladder was injured so that a fistulous

orifice resulted. In two of them spontaneous recovery occurred. Even had it not done so, with the means now at our disposal for the surgical treatment of vesical fistula, little weight need be attached to the occurrence of this accident. In saying this, I do not mean that the occurrence of a vesical fistula during delivery is to be regarded as a matter in itself of small moment, but that the alternative operations being either Cæsarean section or craniotomy, it should weigh very lightly against a procedure which serves to avoid them both.

I propose now to consider whether laparo-elytrotomy does avoid the dangers attending upon laparo-hysterotomy, and in what manner such avoidance is effected. The chief dangers of the latter procedure are :

1st. Peritonitis.
2d. Metritis.
3d. Hemorrhage.
4th. Shock.
5th. Incarceration of intestines in uterus.
6th. Septicæmia.

The operation of laparo-elytrotomy avoids entirely the first, second, and fifth of these dangers, and in great degree diminishes the probability of the fourth and sixth. It may be followed by the third (hemorrhage), and in place of peritonitis may create cellulitis. As neither peritoneum nor uterus are cut, the great risks of inflammation of these parts, together with that of hernia into the uterus, are avoided. The peritoneal cavity being unopened, there is little danger of that sudden nervous prostration which we style shock ; and as the wound admits of being flooded constantly with carbolized water, the probability of the occurrence of septicæmia is very much lessened.

The great danger to be apprehended is unquestionably hemorrhage. In none of the five cases here reported did it occur, but the future may belie the past in this regard. There is a congerie of large, tortuous arteries around the vagina which must be severed ; but by means of ligatures, the actual cautery, or such styptics as the persulphate of iron, hemorrhage could probably be controlled, even if it did occur.

In concluding this essay, it may be well for me to meet the question whether I regard it as proved that laparo-elytrotomy

is superior in all cases as a resource practised in the interest of mother and child, to the Cæsarean section, and in many cases even for the mother, to embryulcia. As I have already remarked, when I began investigating this procedure it had, after a very imperfect trial, after inadequate consideration, and when it had been only once performed, been completely cast aside and had fallen into an oblivion which has not even in our day attached to symphyseotomy, ligation of the aorta, and many other operations which have been weighed in the balance and found wanting. In estimating its value, and endeavoring to establish upon a true basis its superiority to sacrificial methods now in vogue, it may well be supposed that I have given grave reflection to the subject. In reply to the question which I have now proposed, I would say that I do not regard the claims of laparo-elytrotomy, to being established as a standard operation, as yet proved, but that I do regard it as now sufficiently tested by experiment to deserve careful consideration at the hands of the medical profession.

Every new and grave surgical procedure must run the gauntlet of the opinions of those who reason upon it from a theoretical standpoint alone; who have given little time or thought to its consideration, even theoretically, and who know absolutely nothing about it practically. We all know how cogent is the reasoning of such philosophers, how weighty their arguments, how convincing their words. For eight years laparo-elytrotomy has gone through this period of probation; for eight years I have listened to the style of argument to which I have alluded, never, however, for a moment doubting that the operation was a good, practicable, and legitimate one, and only waiting patiently till another opportunity should offer for its trial. That opportunity has now occurred, and I bring you to-night a report of all the operations thus far performed, five in number, that you may judge by the fruits of the past what the results of the future may be expected to be:

Number of laparo-elytrotomy operations performed.....5
Number of mothers now living.....3
Number of children delivered alive.....4

But even this exhibit falls far short of the truth, for in my first case the mother was *in articulo mortis*, and the operation was performed in the interest of the infant alone, which was born alive and uninjured; while in Dr. Skene's first it was undertaken solely for the relief of the mother, who was almost moribund, the child being already dead.

Can any one point to similar results from the Cæsarean section? Can any one point to better results *for the mother herself* after that sacrificial operation, embryotomy, by which all the children are inevitably destroyed?

These results, too, it must be remembered, have been attained by an operation in its extreme youth and imperfection of development; at a time when every operation must be viewed with leniency, and when every candid mind must admit that the future may bring improvement in its performance, and increased skill in avoiding the dangers which attach to it.

That hemorrhage may be one of its results I freely admit, as every one must do who examines the vascular supply to the walls of the vagina. I have looked for it with dread in my two operations, as Skene did in his. But in five cases no hemorrhage whatever has occurred. Why should it do so in the future if in this number it has not done so? But even admitting that it may occur, unless it be so violent and uncontrollable as to prove fatal, it may become a question whether the risks of it should not be taken, when in compensation for them we obtain immunity from the dangers of peritonitis and shock, and diminution of the danger of septicæmia, or at least the acquirement of greater facility for its treatment.

As I was in the act of delivering the child in my second case, Dr. Dwyer, one of the physicians of the patient, remarked, "I hope that the child may be born alive." Confident in the operation in this respect, I replied, almost without thinking, "Why, what is there to kill the child?" Dr. Skene's confidence in it for the mother will be appreciated from the fact that his first operation was performed in her interest alone, after the perforation of the child.

The patient upon whom I last operated will almost surely return within a year, presenting for consideration the question as to whether embryotomy, Cæsarean section, or laparo-

elytrotomy would be most appropriate for her deliverance. He who, in the face of the evidence here presented, should resort to either of the two first mentioned, throwing aside the last merely from prejudice or theory, would have strong faith in his own convictions, or else little regard for the results of experience. As for me, the readiness with which I urged a procedure which certainly saved one life, and in all probability saved two in her last delivery, would certainly be sharpened by the fortunate result in her case and my increasing confidence in laparo-elytrotomy.

The operation which I am advocating is by no means difficult of performance. It may be accomplished with rapidity and certainty by any operator of ordinary skill. Let us analyze its steps. Incision through the abdominal walls is as simple as when performed for Cæsarean section. Lifting of the peritoneum is perfectly easy, and when the vagina is pushed upwards into the iliac opening by a sound or the finger of an assistant, no difficulty attends cutting through its walls. After this, delivery by version is not as difficult as when performed through the vagina.

No parallel should be drawn between the lifting of the peritoneum of the pregnant and non-pregnant subject. In the former it is ample and movable to a degree which is unknown in the latter.

I shall trespass only a few minutes longer upon the patience of the society in detailing the consecutive steps which I should advise from the experience which I have had in this operation:

First. The operator should be provided with a pocket-case of instruments, ether, Barnes' dilators, and Paquelin's thermo-cautery, or, in place of it, ordinary cautery-irons.

Second. The patient having been etherized, she should be placed upon a firm table, and the os fully dilated by Barnes' dilators.

Third. The abdominal wound should be made; the peritoneum lifted; the vagina opened; and the child delivered by version, if the head or arm present; by extraction, if the breech do so.

Fourth. The placenta having been delivered, and the uterus caused to contract firmly, the iliac fossa should be cleansed by

a stream of warm water, introduced through the abdominal wound, and escaping through the vagina; and if hemorrhage exist, ligatures should be applied, if possible through the abdominal wound, to the bleeding vessels. Should this prove impossible, the vagina should be distended by a large metallic speculum, and the lips of the abdominal wound being widely separated, the bleeding points touched by the actual cautery carried down from above. Should this fail, the uterus should be made to contract firmly by ergot, and both vagina and iliac fossa be thoroughly tamponed with cotton soaked in water and squeezed, but free from any styptic. Then a broad band of adhesive plaster, and a compress should be applied over the lower portion of the abdomen.

Fifth. Should no undue hemorrhage occur, the abdominal wound should be closed by interrupted silver sutures; the vagina should be syringed out every five hours with warm carbolized water, the nozzle of the syringe being carried through the vaginal opening, and the fluid forced out through that in the abdomen. The patient should be kept perfectly quiet, nourished by milk and animal broths, and kept free from pain by opium.